



EPA's ENERGY STAR® Measurement and Tracking Tool Portfolio Manager for EISA 2007 Benchmarking and the E.O. 13514 Guiding Principles

NASA 2011 Facilities Engineering and Real Property Conference
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Lockheed Martin Energy Solutions

Agenda

- **Guiding Principles and EISA policy background**
- **Portfolio Manager overview**
- **GP Checklist in Portfolio Manager**

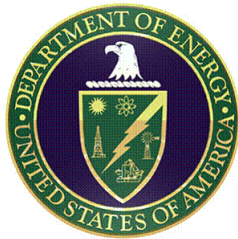
Guiding Principles Checklist in Portfolio Manager

June 2009

Collaboration begins between DOE FEMP / EPA / GSA

October 2009

Guiding Principles Checklist is live within EPA's Portfolio Manager



U.S. General Services Administration



Policy History: Guiding Principles

January 24-25, 2006:

White House signing of the "Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU)"

January 24, 2007:

Executive Order 13423 "Strengthening Federal Environmental, Energy and Transportation Management"

December 1, 2008:

New guidance issued for High Performance and Sustainable Buildings for both new and existing buildings

October 5, 2009:

EO 13514 Federal Leadership in Environmental, Energy, and Economic Performance sets sustainability goals for Federal agencies and focuses on making improvements in their environmental, energy and economic performance.

EO 13514

- Achieve 30% reduction in vehicle fleet petroleum use by 2020
- Achieve 26% reduction in potable & 20% reduction in industrial, landscaping, & agricultural water consumption by 2020
- Comply with new EPA stormwater management guidance
- Achieve 50% recycling & waste diversion by 2015
- Requires that 95% of all applicable procurement contracts will meet sustainability requirements
- **Requires 15% of buildings meet the *Guiding Principles for High Performance and Sustainable Buildings* by 2015**
- Design all new Federal buildings which begin the planning process by 2020 to achieve zero-net energy by 2030
- Pursue cost-effective & innovative strategies, such as highly reflective & vegetated roofs

The Guiding Principles: A lot of questions

- **Interagency Sustainability Working Group (ISWG) GP Task Group, Dec. 2010**
- **Align with the EO 13514, legislation, and federal rulemaking**
- **Proposed interpretations and recommended evidence of compliance**
- **GPs for Leases?**
- **Policy and reporting?**
- **For delivery to ISWG and OMB by June 2011**

Guiding Principles for Existing Buildings

- I. Employ **Integrated Design** Principles
- II. Optimize **Energy** Performance
- III. Protect and Conserve **Water**
- IV. Enhance **Indoor Environmental Quality**
- V. Reduce Environmental **Impact of Materials**
- VI. Sustainable Site Characteristics?

GP Compliance Reporting: Federal Real Property Profile, Data element #25



FRPP

Federal
Real
Property
Profile

What is the Federal Real Property Profile?

“The Federal Real Property Profile (FRPP) is the single comprehensive inventory system that contains data on all federal real property assets within and outside the United States, including improvements on federal land.”

– GSA Website

Welcome to Federal Real Property Profile

Please type your Username and Password, then click Login to enter FRPP.

• Login

* Username:

* Password:

* Note: Fields marked with (*) are required.

Login ▶

[Request a User Account?](#)

[Forgot Your Password?](#)

[Reactivate Account?](#)

Report compliance no later than Dec. 15, coordinated with agency's Senior Real Property Officer

EISA 2007 sec. 432

Benchmarking of Federal Facilities



- Covered = “federal facilities...that constitute at least 75 % of facility energy use at each agency” that are metered
- Energy benchmarking for “covered facilities” by energy manager
- April 15, 2010: Building Energy Use Benchmarking Guidance
- **Benchmarking System:** “DOE has selected the ENERGY STAR Portfolio Manager tool (Portfolio Manager)...”
- **Start benchmarking as soon as electricity is metered**
- **Keep benchmarking as new meters for natural gas, steam, etc... are added**

Building Energy Use Benchmarking Guidance



Benchmarking = The process of accounting for and comparing a metered building's current energy performance with its energy baseline, or comparing a metered building's energy performance with the energy performance of similar types of buildings.

Portfolio Manager produces both internal and peer-to-peer benchmarking metrics

EISA 432 Compliance Tracking System (CTS)



- Designation and location of facilities covered by EISA requirements
- Assignment of energy managers
- Energy and water evaluations completed at covered facilities
- Implementation of energy and water efficiency measures (ECMs), including estimated cost and savings
- Follow-up status on implemented measures, including measured savings and persistence of savings
- **Building benchmarking** information

CTS Benchmarking Data



1. **Building characteristics** : name, type (office, warehouse, etc), location, floor area
2. **Name of benchmarking tool** used
3. **Energy consumption data**: a) total or partial energy consumed b) annual site energy in Btu
4. **Benchmarking results**: a) site energy intensity b) source energy consumption c) source energy intensity
5. **Benchmarking rating/score** (if available)

Portfolio Manager users will have an automated option for upload into CTS



What is Portfolio Manager?

- 1) An interactive management tool that allows users to **track, assess and benchmark energy and water consumption** for **all** facility types across entire building portfolios
- 2) For spaces eligible to receive the ENERGY STAR performance score, it is a **standardized metric** for comparing whole building energy performance to other buildings of similar type across the nation

Portfolio Manager: Whole building energy benchmarking tool



- No-cost on-line benchmarking tool for *all* commercial buildings
- Track energy use
 - Weather normalized source EUI
 - National average comparisons
 - Comparison to custom baselines
 - Energy performance ratings (for selected spaces)
- Track energy costs, upgrades, and investment cost, carbon emissions, and water
- Customized dashboard, reporting, and data sharing
- Apply for ENERGY STAR recognition
- Guiding Principle Checklist and EISA 2007 requirements

Eligible to Receive the ENERGY STAR Score



**** All facility types can track and assess energy, GHG emissions, and water use**



Bank/Financial Institutions



Courthouses



Data Centers



Dormitories



Hospitals



Hotels



Houses of Worship



K-12 Schools



Medical Offices



Office Buildings



Retail Stores



Senior Care Communities



Supermarkets



Warehouses



Wastewater Treatment Plants*



Energy Performance Score for Buildings



Fuel Efficiency
MPG

Is 60 MPG high or low for an automobile?

Is 80 kBtu/SF/YR high or low for a building?

Statement of Energy Performance

ENERGY STAR Score

STATEMENT OF ENERGY PERFORMANCE
Margrave High School
Building ID: 107125
For 12-month Period Ending: January 31, 2004

Date SEP Generated: March 25, 2004

Owner: Fairfax County
Contract: John Doe
100 South Fort Myer Drive
Suite 100
Arlington, VA 22204
(703) 241-6800

Facility Space Use Summary

Space Type	Area ⁽¹⁾	Number of Students	Number of PCs	Cooling Percent
Computer Data Center	134	NA	NA	NA
K-12 Schools	28,121	1,071	420	100

Site Energy Use Summary

Electricity (kBtu)	Gas (kBtu)	Other (kBtu)	Total Energy (kBtu)
5,648,801	320,419	0	5,979,220

Professional Verification
John Doe
100 South Fort Myer Drive
Suite 100
Arlington, VA 22204
(703) 241-6800

Results

Energy Performance Rating⁽¹⁻¹⁰⁰⁾: 94

Energy Intensity⁽²⁾
Site (kBtu⁽³⁾/sf): 17
Source (kBtu⁽³⁾/sf): 49.4

Exhaustion
CO₂ (1000 Bu/sf): 2.97
SO₂ (1000 Bu/sf): 355
NO_x (1000 Bu/sf): 21

Energy Cost
Cost (\$/yr): \$204,400
Intensity (\$/sf-yr): \$0.72

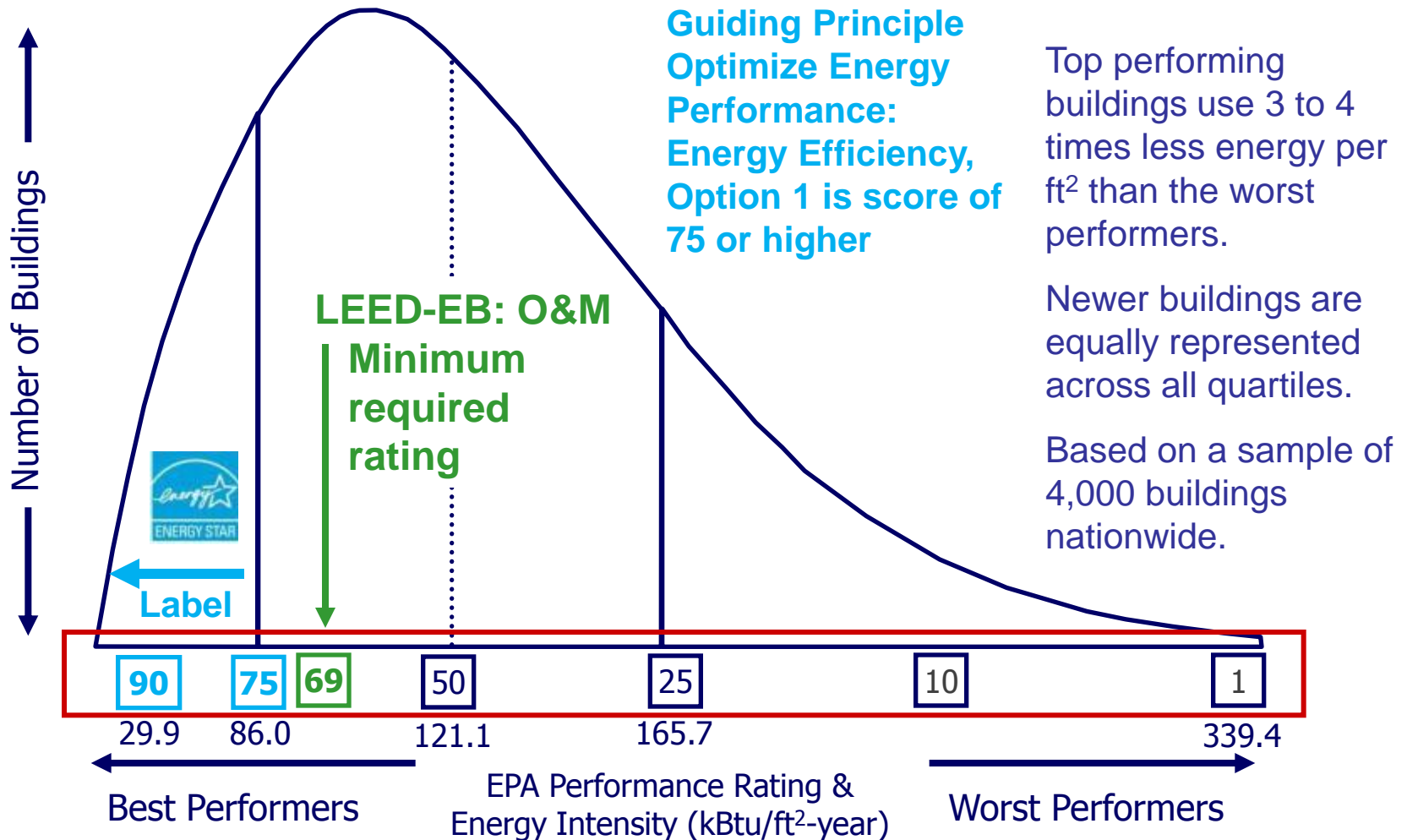
Indoor Environment Criteria⁽⁴⁾
Interior air pollutants controlled? Yes
Adequate ventilation provided? Yes
Thermal conditions met? Yes
Adequate illumination provided? Yes

Notes:
1. A template for ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Approval of ENERGY STAR is not final until approval is received from EPA.
2. Actual performance values of the building must agree with the reported values by 20% or better.

EPA Lighting Handbook for lighting quality.
Number: SEP2004030001004542



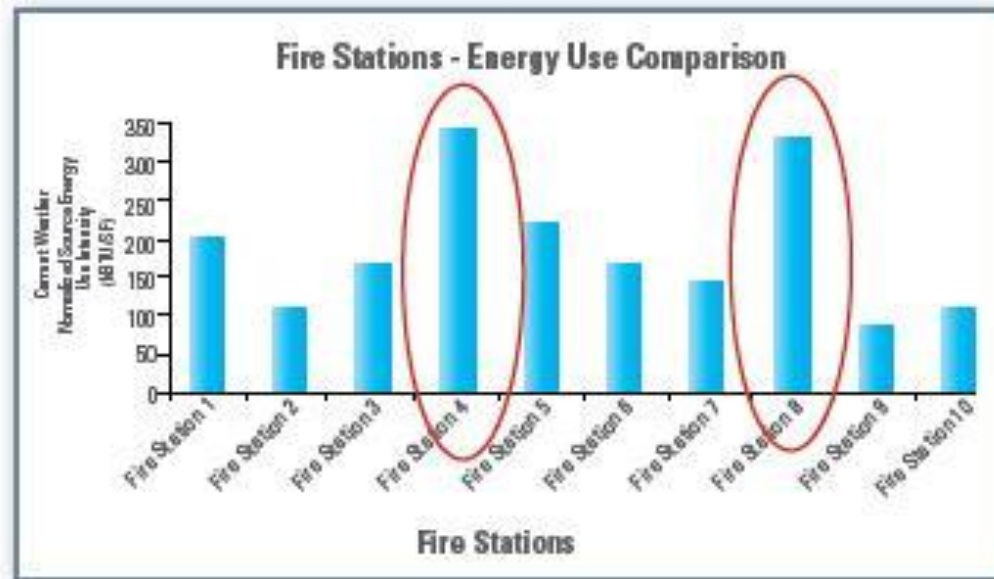
ENERGY STAR Energy Performance Score



Identify Best Opportunities for Energy Efficiency Improvements



- Identify under-performing buildings to target for energy efficiency improvements.
- Establish baselines to set goals and measure progress



Prioritize efforts by identifying under-performing buildings.

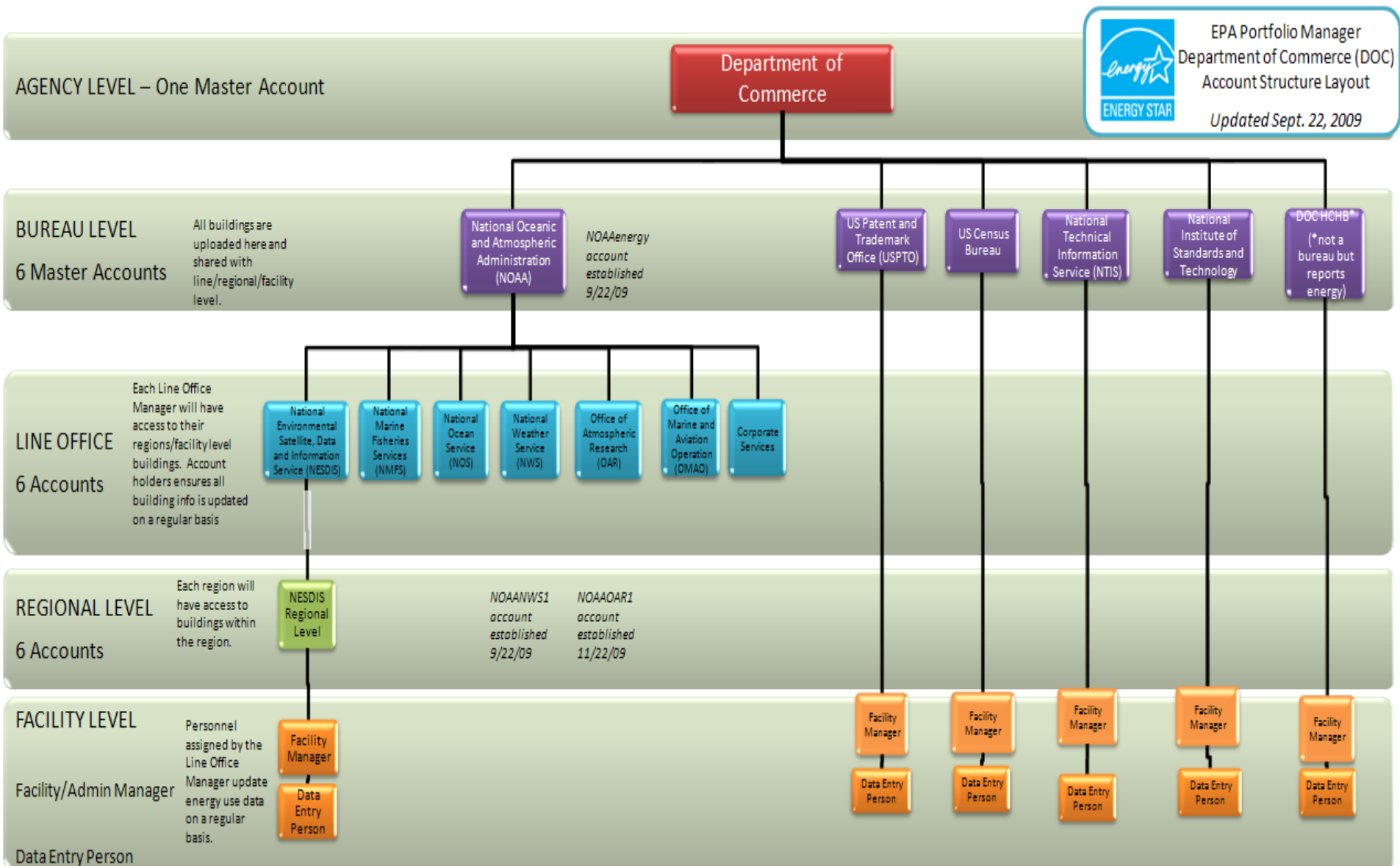
You can't manage what you don't measure!

Using Portfolio Manager: Where to begin?



- Coordinate with and between sustainability and energy leads
- Comply with GPs and/or EISA 2007 and/or LEED?
- Establish a framework for initial data entry to avoid duplication
- Establish a framework for sharing Portfolio Manager building profiles and data (external hierarchy)

Sample account structure for sharing and reporting



Federal facilities will need this data



General Facility Information

- *Address: city, country, state, & zip code
&
Year Built, plus
- *Agency, Department, Federal Campus
- *Federal Real Property ID

**To access
GP
Checklist**

Energy and Water Consumption

11 consecutive months of data for each energy source for a score

24 months of energy and water use for tracking over time

Space Type Data

Square Footage
Occupancy
Number of PCs
Hours of operation
% Heated and Cooled

**To track and
benchmark
Consumption
for EISA**



Guiding Principles Checklist in Portfolio Manager



Step 1

Register a new account in Portfolio Manager

(or access existing account)

2

Add a federal property

(Federal Building Import Template is the preferred method which can also set-up space and meter types for benchmarking purposes)

3

Input building space type operating characteristics

4

Add monthly energy and water meter data

(Multiple meter upload templates available. Meter type must be set-up first if this wasn't done in Step 2)

5

Update data regularly

Guiding Principles Checklist becomes available

Guiding Principles Checklist will populate with energy and water metrics

After the first two steps, users can access the Guiding Principles Checklist to document building assessments for ALL Guiding Principles. Users may choose to complete steps three and four for energy and water consumption benchmarking purposes and to auto-populate associated metrics within the applicable required actions in the Guiding Principles Checklist.

Step 2

Add a Federal Property



General Facility Information

Address: City, County, State, & Zip Code

**& Year Built, Agency, Department, Federal Campus,
Federal Real Property ID**

Four ways to get data in Portfolio Manager...

1. Import federal facilities using the Federal Building Import Template (recommended)
2. Manually add individual federal properties
3. Edit a property that already exists in Portfolio Manager as federal
4. Automated Benchmarking Service (ABS)

Step 2, 3 and 4

Using the Federal Building Import Template



- Time-saving tool designed for agency-wide data upload
- Import basic facility data to access the GP Checklist
- Import space use, energy, and water data for tracking and benchmarking, to populate the GP Checklist, and for EISA benchmarking
- Submit to EPA staff for data QC, duplicate check, and successful upload

Facility Name	Street Address	City	State Abbreviation	Zip Code	Year Built	Agency
100 Area Emergency Rad Detect Sys Bldg	Hanford Site 100 Area	Richland	WA	99354	1985	Department of Energy (DOE)
Radiological Calibrations Lab	318 Cypress St.	Richland	WA	99354	1967	Department of Energy (DOE)
Oil Storage Facility	350D Ash St.	Richland	WA	99354	1987	Department of Energy (DOE)
Storage Building	350C Ash St.	Richland	WA	99354	1982	Department of Energy (DOE)
331G Integration Laboratory	331G Cypress St.	Richland	WA	99354	1977	Department of Energy (DOE)
3760 Office Building	3760 Redwood St.	Richland	WA	99354	1952	Department of Energy (DOE)
Analysis & Nuclear Research Lab	320 Cypress St.	Richland	WA	99354	1965	Department of Energy (DOE)
Warehouse	350B Ash St.	Richland	WA	99354	1990	Department of Energy (DOE)
Interim Waste Storage & Disposal	331C Cypress St.	Richland	WA	99354	1974	Department of Energy (DOE)
Aerosol Wind Tunnel Res Fac	331H Cypress St.	Richland	WA	99354	1979	Department of Energy (DOE)
Bioanalytic Effects Lab	331D Cypress St.	Richland	WA	99354	1974	Department of Energy (DOE)
Storage Building	Hanford Site 600 Area	Richland	WA	99354	1973	Department of Energy (DOE)
William R. Wiley - EMSL	3345 Q Avenue	Richland	WA	99354	1997	Department of Energy (DOE)
Mike Dunbar	Hanford Site ALE Area	Richland	WA	99354	1944	Department of Energy (DOE)
300 Area Emergency Rad						
Life Sciences Lab						
Radiochemical Processing						

Federal Campus	Federal Real					
Pacific Northwest Natio 6221HA	091	Other		96 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 318	091	Other		37025 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 350D	091	Other		960 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 350C	091	Warehouse (Unrefrigerated)		212 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 331G	091	Other		1200 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 3760	091	Office		21908 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 320	091	Other		31427 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 350B	091	Other		2122 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 331C	091	Other		5196 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 331H	091	Other		3557 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 331D	091	Warehouse (Unrefrigerated)		1280 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 622C	091	Warehouse (Unrefrigerated)		1170 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 3620	093	Other		22445 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 6652L	091	Other		4663 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 6223A	091	Other		96 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 331	091	Other		11527 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 325	091	Other		144520 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 622A	091	Other		170 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 622B	091	Other		144 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 622R	091	Other		8960 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 325	091	Other		63334 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 350A	091	Other		1400 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 320	091	Other		22048 Electricity - Grid Purchase - Mbu (million Btu)		DOE
Pacific Northwest Natio 329	091	Other		39420 Electricity - Grid Purchase - Mbu (million Btu)		DOE

www.energystar.gov/federal



Guiding Principles Checklist in Portfolio Manager

Used for :

- **Conducting building walk-throughs**
- **Recording compliance**
- **Storing compliance documents**
- **Reporting**

Live Demo

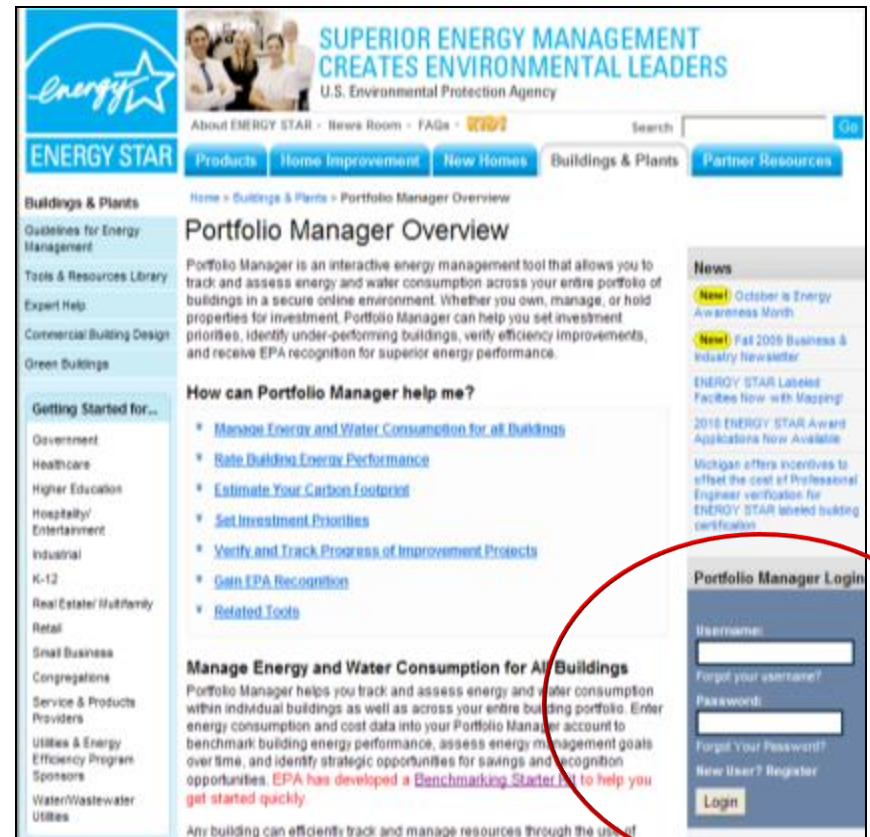


1. Register username and log in
2. Enter a federal facility manually
3. Add space
4. Add energy and water
5. Sharing feature
6. GP Checklist functionality
7. GP Checklist PDF Report
8. GP Federal Sustainability Report
9. EISA 2007 data

Log-in to Portfolio Manager to Access the Guiding Principles Checklist



www.energystar.gov



www.energystar.gov/benchmark

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A large, multi-pointed starburst graphic with a blue outline and a light gray fill, containing the text "FREE training and support" in red.

**FREE training
and support**

New Custom Reporting: Request and Receive Data from Other PM Users



1. Choose data (performance metrics) needed for reporting
2. Add custom instructions
3. Distribute report via unique URL
4. Data from recipients is aggregated electronically